REMARKS

I. General

Claims 1-25 and 27-54 were pending in the present application. In a Final Office Action (mailed April 20, 2005), claims 1-18 and 52 were indicated as being allowed and the remaining claims 19-51 and 53-54 were rejected. In response to such Final Office Action, Applicant appealed the rejection of claims 19-51 and 53-54 to the Board and submitted a supporting Appeal Brief presenting arguments that the rejections were improper. In response to the Appeal Brief, the current Office Action (mailed September 28, 2005) was mailed, which again indicates that claims 1-18 and 52 are allowed and presents new grounds of rejection for claims 19-51 and 53-54.

The outstanding issues raised in the current Office Action are:

- Claims 19-25 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,654,013 issued to Malzbender et al. (hereinafter "*Malzbender*");
- Claims 27-28, 30-31, 45, 49, and 53 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,765,573 issued to Kouadio (hereinafter "*Kouadio*");
- Claims 29, 32-44, 46-48, and 50-51 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kouadio* in view of U.S. Patent No. 6,833,830 issued to Collodi (hereinafter "*Collodi*"); and
- Claim 54 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kouadio* in view of U.S. Patent No. 5,537,494 issued to Toh (hereinafter "*Toh*").

Applicant appreciates the continued indication of claims 1-18 and 52 as being allowed. However, Applicant respectfully traverses the outstanding claim rejections, and requests reconsideration and withdrawal thereof in light of the amendments and remarks presented herein.

II. Amendments

Claims 19 and 50-51 are amended and new claims 55-64 are added herein. No new matter is added by these amendments and added claims. Claim 19 is amended to specify that the recited surface structure is a "homogeneous" surface structure. Claims 50 and 51 are each

amended to recite the "computer-executable software code" rather than the "method" for consistency with their respective independent claim 49.

III. Rejections under 35 U.S.C. § 102(e) over *Malzbender*

Claims 19-25 are rejected under 35 U.S.C. § 102(e) as being anticipated by *Malzbender*, see pages 2-3 of the current Office Action. Applicant respectfully traverses this rejection as provided further below.

To anticipate a claim under 35 U.S.C. § 102, a single reference must teach every element of the claim, *see* M.P.E.P. § 2131. Applicant respectfully submits that *Malzbender* fails to teach each and every element of claims 19-25, as discussed below.

Independent Claim 19

Independent claim 19, as amended herein, recites "a parametric texture map executable by said graphics processor, wherein said parametric texture map models a surface reflectance function defining surface reflectance properties for a homogeneous surface structure, and wherein said surface reflectance function comprises a Bidirectional Reflectance Distribution Function (BRDF)" (emphasis added). *Malzbender* fails to explicitly teach a parametric texture map that models a surface reflectance function defining surface reflectance properties for a homogeneous surface structure.

Accordingly, independent claim 19 is not anticipated under 35 U.S.C. § 102 by *Malzbender*.

Dependent Claims 20-25

Each of dependent claims 20-25 depend either directly or indirectly from independent claim 19, and thus inherit all limitations of claim 19. It is respectfully submitted that dependent claims 20-25 are allowable not only because of their dependency from independent claim 19 for the reasons discussed above, but also in view of their novel claim features (which both narrow the scope of the particular claims and compel a broader interpretation of claim 19 from which they depend).

III. Rejections under 35 U.S.C. § 102(e) over *Kouadio*

Claims 27-28, 30-31, 45, 49, and 53 are rejected under 35 U.S.C. § 102(e) as being anticipated by *Kouadio*, see pages 3-4, and 7-8 of the current Office Action. While claims 45, 49, and 53 are treated in the current Office Action under a section with the heading "Claim Rejections – 35 USC § 103" which asserts that "Claims 32-51, 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kouadio ... in view of Collodi" (see page 4 of the current Office Action), the treatment of claims 45, 49, and 53 in the Office Action in no way mentions *Collodi* nor establishes a prima facie case of obviousness. Instead, the treatment of claims 45, 49, and 53 in the Office Action asserts that *Kouadio* teaches all elements of these claims. Thus, Applicant interprets the rejection of claims 45, 49, and 53 as being a rejection under 35 U.S.C. § 102(e) over *Kouadio*, and Applicant respectfully requests that if the Examiner truly intends a rejection under 35 U.S.C. §103 over *Kouadio* in view of *Collodi* that the Examiner provide, in a non-final action, a proper prima facie case of obviousness (i.e., which details the reliance on *Collodi* and the requisite motivation for combining *Collodi*'s teaching with that of *Kouadio*, etc.) to afford Applicant a full and fair opportunity to address such rejection.

Applicant respectfully traverses the rejection of claims 27-28, 30-31, 45, 49, and 53, as provided further below.

To anticipate a claim under 35 U.S.C. § 102, a single reference must teach every element of the claim, *see* M.P.E.P. § 2131. Applicant respectfully submits that *Kouadio* fails to teach each and every element of claims 27-28, 30-31, 45, 49, and 53, as discussed below.

Independent Claim 27

Independent claim 27 recites "a texture map data structure including a function for representing a texture map of a plurality of texels, said function evaluating at least two independent variables for defining an illumination vector and at least two independent variables for defining a view vector." Applicant respectfully submits that *Kouadio* fails to teach these elements of claim 27.

First, as discussed further below, *Kouadio* fails to teach a texture map data structure that includes a function for representing a texture map of a plurality of texels. Instead, *Kouadio* teaches using a BRDF to compute values, and the resulting values are stored to a texture map. Thus, the computed values stored in the texture map can be looked up quickly during rendering of an image, without requiring computation at that time. Thus, the texture map of *Kouadio* is not taught as including a function, but rather merely stores computed values that can be looked up. Second, the texture map data structure of *Kouadio* does not include a function that evaluates at least two independent variables for defining an illumination vector and at least two independent variables for defining a view vector. Rather, a BRDF is first used to compute resulting values for an image, which are then stored as a texture map. Thus, the texture map of *Kouadio* is taught as containing computed values, instead of including a function that evaluates the variables as recited in claim 27.

For instance, *Kouadio* provides at column 2, lines 52-62:

> The invention technique employs a selected BRDF model during development of a CG program to compute light reflectance values for a sampled range of normal direction vectors as a texture map to be used later during rendering. The BRDF model is applied with a standard model for distribution of normal direction vectors for a given type of surface, and the BRDF values are computed and stored as a look-up table indexed to the sampled range of normal direction vectors. During real-time rendering, surface shading can be readily processed by using the normal direction vector for any given point to look up the stored BRDF value.

Similarly, *Kouadio* provides at column 4, lines 47-59:

> In the present invention, a selected BRDF function is used to generate a light reflectance texture map during development of a CG program and stored for later use during real-time rendering. The texture map is stored as a look-up table of light reflectance values indexed to normal direction vectors over a sampled range of spherical coordinates. During rendering, the object's surface is shaded by retrieving the stored light reflectance value for the corresponding normal direction vector ascribed to the point on the surface. In this manner, the richness of the BRDF modeling of light reflectance from a surface can be incorporated in surface shading, without the computational cost of using the BRDF model during real-time rendering.

Thus, as can be seen from the above portions of *Kouadio*, *Kouadio* does not teach that its texture includes a function, but instead teaches that its texture map merely includes computed values that can be looked up using normal direction vectors.

In view of the above, *Kouadio* fails to teach all elements of independent claim 27, and thus claim 27 is not anticipated under 35 U.S.C. §102 over *Kouadio*. Accordingly, Applicant requests that the rejection of claim 27 be withdrawn.

Dependent Claims 28 and 30-31

Each of dependent claims 28 and 30-31 depend either directly or indirectly from independent claim 27, and thus inherit all limitations of claim 27. It is respectfully submitted that dependent claims 28 and 30-31 are allowable not only because of their dependency from independent claim 27 for the reasons discussed above, but also in view of their novel claim features (which both narrow the scope of the particular claims and compel a broader interpretation of claim 27 from which they depend).

Independent Claim 45

Independent claim 45 recites "a texture map that includes a Bidirectional Reflectance Distribution Function (BRDF) for use in rendering a digital image, wherein said BRDF includes more than two variables relating to surface reflectance properties of said digital image." Applicant respectfully submits that *Kouadio* fails to teach these elements of claim 45.

First, as discussed above with claim 27, *Kouadio* fails to teach a texture map that includes a BRDF for use in rendering a digital image. Instead, *Kouadio* teaches using a BRDF to compute values, and the resulting values are stored to a texture map. Thus, the computed values stored in the texture map can be looked up quickly during rendering of an image, without requiring computation at that time. Thus, the texture map of *Kouadio* is not taught as including a BRDF function, but rather merely stores computed values that can be looked up. Second, the texture map data structure of *Kouadio* does not include a BRDF that includes more than two variables relating to surface reflectance properties of the digital image. Rather, a BRDF is first used to compute resulting values for an image, which are then

stored as a texture map. Thus, the texture map of *Kouadio* is taught as containing computed values, instead of including a BRDF function that includes variables as recited in claim 45.

In view of the above, *Kouadio* fails to teach all elements of independent claim 45, and thus claim 45 is not anticipated under 35 U.S.C. §102 over *Kouadio*. Accordingly, Applicant requests that the rejection of claim 45 be withdrawn.

Independent Claim 49

Independent claim 49 recites "code for receiving at least four independent surface reflectance property variables; and code for using a function included in a texture map for rendering a digital image, wherein said function evaluates the received at least four independent surface reflectance property variables to render said digital image having proper surface reflectance properties" (emphasis added). Applicant respectfully submits that *Kouadio* fails to teach these elements of claim 49.

First, as discussed above with claim 27, *Kouadio* fails to teach using a function that is included in a texture map for rendering a digital image. Instead, *Kouadio* teaches using a BRDF to compute values, and the resulting values are stored to a texture map. Thus, the computed values stored in the texture map can be looked up quickly during rendering of an image, without requiring computation at that time. Thus, the texture map of *Kouadio* is not taught as including a function for rendering a digital image, but rather merely stores computed values that can be looked up. Second, the texture map data structure of *Kouadio* does not include a function that evaluates at least four independent surface reflectance property variables to render the digital image. Rather, a BRDF is first used to compute resulting values for an image, which are then stored as a texture map. Thus, the texture map of *Kouadio* is taught as containing computed values, instead of including a function that evaluates variables as recited in claim 49.

In view of the above, *Kouadio* fails to teach all elements of independent claim 49, and thus claim 49 is not anticipated under 35 U.S.C. §102 over *Kouadio*. Accordingly, Applicant requests that the rejection of claim 49 be withdrawn.

Independent Claim 53

Independent claim 53 recites "creating a parametric texture map that comprises parameters for an equation that defines a surface structure in a manner in which the appearance of the surface structure includes surface reflectance properties, wherein said equation models a Bidirectional Reflectance Distribution Function (BRDF)" (emphasis added). Applicant respectfully submits that *Kouadio* fails to teach these elements of claim 53.

First, as discussed above, *Kouadio* fails to teach creating a parametric texture map that comprises parameters for an equation. Instead, *Kouadio* teaches using a BRDF to compute values, and the resulting values are stored to a texture map. Thus, the computed values stored in the texture map can be looked up quickly during rendering of an image, without requiring computation at that time. Thus, the texture map of *Kouadio* is not taught as including parameters for an equation, but rather merely stores computed values that can be looked up. Second, the texture map of *Kouadio* does not include parameters for an equation that models a BRDF. Rather, in *Kouadio*, a BRDF is first used to compute resulting values for an image, which are then stored as a texture map. Thus, the texture map of *Kouadio* is taught as containing computed values, instead of including parameters for an equation that models a BRDF as recited in claim 53.

In view of the above, *Kouadio* fails to teach all elements of independent claim 53, and thus claim 53 is not anticipated under 35 U.S.C. §102 over *Kouadio*. Accordingly, Applicant requests that the rejection of claim 53 be withdrawn.

IV. Rejection under 35 U.S.C. § 103(a) over *Kouadio* in view of *Collodi*

Claims 29, 32-44, 46-48, and 50-51 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kouadio* in view of *Collodi*. While claim 29 is treated in the current Office Action under a section with the heading "Claim Rejections – 35 USC § 102" which asserts that "Claims 27-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Kouadio" (see item 5 on page 3 of the current Office Action), the treatment of claim 29 in the Office Action concedes that *Kouadio* fails to teach all elements of claim 29, but asserts that the elements are obvious in view of the teaching of *Collodi*. Thus, Applicant interprets the rejection of claim 29 as being a rejection under 35 U.S.C. § 103 as unpatentable over *Kouadio* in view of

Collodi, and Applicant respectfully requests that if the Examiner truly intends a rejection under 35 U.S.C. §102 over *Kouadio* that the Examiner provide, in a non-final action, a proper rejection that explains how *Kouadio* teaches each and every element of claim 29 to afford Applicant a full and fair opportunity to address such rejection.

Applicant respectfully traverses the rejection of claims 29, 32-44, 46-48, and 50-51, as provided further below.

To establish a prima facie case of obviousness, three basic criteria must be met. *See* M.P.E.P. § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the applied references must teach or suggest all the claim limitations. Without conceding the second criteria, Applicant respectfully asserts that the rejection does not satisfy the first and third criteria.

i. Combination of Kouadio and Collodi Fails to Teach or Suggest All Claim Elements

Claim 29

Claim 29 recites "wherein said texture map data structure further comprises a plurality of coefficients for each texel of said texture map, said plurality of coefficients defining lighting characteristics for varying views of each respective texel." The current Office Action concedes that *Kouadio* fails to disclose this element of claim 29, see page 4 of the current Office Action.

However, the Office Action asserts that "Collodi teaches parametric texture map comprises a plurality of texels and wherein parametric texture map further comprises a plurality of coefficients for each texel...." Page 4 of the current Office Action. Applicant respectfully disagrees. *Collodi* does not teach a parametric texture map, but is rather directed to a technique that uses a bump map, *see e.g.* abstract, col. 2, lines 65-67, and col. 8, lines 12-14 of *Collodi*. *Collodi* makes no mention of a parametric texture map, but instead mentions use of a bump map technique. As discussed in the specification of the present application, PTM is a different texture mapping technique than bump mapping. Accordingly, one of

ordinary skill in the art would not read *Collodi's* bump map technique as a PTM technique. In general, in a bump mapping technique, a bump map includes normal vectors that are associated with each pixel of a texture map that is applied to a geometric object. A parametric texture map includes function(s) at each pixel of a texture map for evaluating certain variables (or parameters) for use in rendering pixels of a digital image. Thus, in the PTM technique, the texture map includes a function for use in rendering a digital image that takes into account such properties as lighting, etc., rather than merely defining a surface (with normal vectors) and using separate hardware/software for determining the pixel values accounting for lighting conditions, etc., as in the bump mapping technique of *Collodi*.

In view of the above, the combination of *Kouadio* and *Collodi* does not provide any teaching or suggestion of the further element of claim 29. Accordingly, withdrawal of the rejection of claim 29 is respectfully requested.

Independent Claim 32

Independent claim 32 recites "a texture map data structure including a function for representing a texture map of a plurality of texels, said function evaluating at least two independent variables for defining a half-angle vector and at least two independent variables for defining a different vector." As discussed below, the combination of *Kouadio* and *Collodi* fails to teach or suggest all elements of claim 32.

The current Office Action asserts that *Kouadio* teaches a texture map data structure including a function for representing a texture map of a plurality of texels. As discussed above, Applicant disagrees. *Kouadio* instead teaches that a BRDF is used to compute values, which are then stored to a texture map and may be looked up during rendering using a normal vector. *Kouadio* does not teach or suggest that its BRDF (or other function) is included in a texture map data structure, but instead the texture map structure of *Kouadio* merely includes previously computed values that may be looked up.

Further, *Collodi* also fails to teach or suggest a texture map data structure that includes a function for representing a texture map of a plurality of texels. While *Collodi* teaches a texture map (i.e., a bump map), such texture map of *Collodi* does not include a function that evaluates the variables as specified by claim 32. Again, as discussed above, in

bump mapping, the texture map includes normal vectors that are associated with each pixel of a texture map that is applied to a geometric object. Separate hardware/software components may evaluate specular and/or diffuse components of lighting for rendering a digital image, but a function for evaluating such variables as those of claim 32 is not included in the bump map.

Thus, the combination of *Kouadio* and *Collodi* fails to teach or suggest the above element of claim 32. Accordingly, withdrawal of the rejection of claim 32 is respectfully requested.

Independent Claim 36

Independent claim 36 recites "using a texture map that includes a function for use in rendering a digital image having surface reflectance properties, wherein said function evaluates more than two variables directed to surface reflectance properties." As discussed below, the combination of *Kouadio* and *Collodi* fails to teach or suggest all elements of claim 36.

The current Office Action asserts that *Kouadio* teaches a texture map that includes a function for use in rendering a digital image having surface reflectance properties. As discussed above, Applicant disagrees. *Kouadio* instead teaches that a BRDF is used to compute values, which are then stored to a texture map and may be looked up during rendering using a normal vector. *Kouadio* does not teach or suggest that its BRDF (or other function) is included in a texture map, but instead the texture map of *Kouadio* merely includes previously computed values that may be looked up.

Further, *Collodi* also fails to teach or suggest a texture map that includes a function for use in rendering a digital image. While *Collodi* teaches a texture map (i.e., a bump map), such texture map of *Collodi* does not include a function that evaluates variables as specified by claim 36. Again, as discussed above, in bump mapping, the texture map includes normal vectors that are associated with each pixel of a texture map that is applied to a geometric object. Separate hardware/software components may evaluate specular and/or diffuse components of lighting for rendering a digital image, but a function for evaluating variables such as recited by claim 36 is not included in the bump map.

Thus, the combination of *Kouadio* and *Collodi* fails to teach or suggest the above element of claim 36. Accordingly, withdrawal of the rejection of claim 36 is respectfully requested.

Independent Claim 39

Independent claim 39 recites "a texture map that includes a function for use in rendering a digital image, wherein said function evaluates more than two variables relating to surface reflectance properties of said digital image." As discussed below, the combination of *Kouadio* and *Collodi* fails to teach or suggest all elements of claim 39.

The current Office Action asserts that *Kouadio* teaches a texture map that includes a function for use in rendering a digital image. As discussed above, Applicant disagrees. *Kouadio* instead teaches that a BRDF is used to compute values, which are then stored to a texture map and may be looked up during rendering using a normal vector. *Kouadio* does not teach or suggest that its BRDF (or other function) is included in a texture map, but instead the texture map of *Kouadio* merely includes previously computed values that may be looked up.

Further, *Collodi* also fails to teach or suggest a texture map that includes a function for use in rendering a digital image. While *Collodi* teaches a texture map (i.e., a bump map), such texture map of *Collodi* does not include a function that evaluates variables as specified by claim 39. Again, as discussed above, in bump mapping, the texture map includes normal vectors that are associated with each pixel of a texture map that is applied to a geometric object. Separate hardware/software components may evaluate specular and/or diffuse components of lighting for rendering a digital image, but a function for evaluating variables such as recited by claim 39 is not included in the bump map.

Thus, the combination of *Kouadio* and *Collodi* fails to teach or suggest the above element of claim 39. Accordingly, withdrawal of the rejection of claim 39 is respectfully requested.

Independent Claim 42

Independent claim 42 recites "receiving more than two independent variables relating to surface reflectance properties of a digital image to be rendered; and using a function of a texture map for processing the received variables to render the digital image having surface reflectance properties in accordance with the received variables" (emphasis added). As discussed below, the combination of *Kouadio* and *Collodi* fails to teach or suggest all elements of claim 42.

The current Office Action asserts that *Kouadio* teaches using a function of a texture map for processing received variables to render a digital image. As discussed above, Applicant disagrees. *Kouadio* instead teaches that a BRDF is used to compute values, which are then stored to a texture map and may be looked up during rendering using a normal vector. *Kouadio* does not teach or suggest that its BRDF (or other function) is included in a texture map, but instead the texture map of *Kouadio* merely includes previously computed values that may be looked up.

Further, *Collodi* also fails to teach or suggest using a function of a texture map for processing received variables to render a digital image. While *Collodi* teaches a texture map (i.e., a bump map), such texture map of *Collodi* does not include a function for processing received variables to render a digital image as specified by claim 42. Again, as discussed above, in bump mapping, the texture map includes normal vectors that are associated with each pixel of a texture map that is applied to a geometric object. Separate hardware/software components may evaluate specular and/or diffuse components of lighting for rendering a digital image, but a function for processing received variables to render a digital image as recited by claim 42 is not included in the bump map.

Thus, the combination of *Kouadio* and *Collodi* fails to teach or suggest the above element of claim 42. Accordingly, withdrawal of the rejection of claim 42 is respectfully requested.

Dependent Claims 33-35, 37-38, 40-41, 43-44, 46-48, and 50-51

Each of dependent claims 33-35, 37-38, 40-41, 43-44, 46-48, and 50-51 depend either directly or indirectly from one of independent claims 32, 36, 39, 42, 45, and 49, and thus inherit all limitations of the respective independent claim from which they depend. It is

respectfully submitted that dependent claims 33-35, 37-38, 40-41, 43-44, 46-48, and 50-51 are allowable not only because of their dependency from their respective independent claims for the reasons discussed above, but also in view of their novel claim features (which both narrow the scope of the particular claims and compel a broader interpretation of the respective base claim from which they depend).

ii. Insufficient Motivation to Combine Teaching of Collodi with that of Kouadio

Further, insufficient motivation exists for combining the teaching of *Collodi* with that of *Kouadio* in the manner applied by the current Office Action. For example, in its treatment of claim 29, the current Office Action asserts that: "It would have been obvious ... to incorporate the plurality of coefficients taught by Collodi into the texture map of Kouadio, because it would be useful for specular light sources which often possess intensity variation characteristic unique to the light source and surface composition". Page 4 of the current Office Action. Applicant respectfully disagrees. As discussed above, *Kouadio* is directed to a technique in which a BRDF is used to compute values, which are then stored to a texture map and may be looked up using a normal vector. Further, *Collodi* teaches use of a bump mapping technique. One of ordinary skill in the art would have no motivation to include the coefficients of *Collodi* in the texture map of *Kouadio*, as the texture map of *Kouadio* merely includes resulting values previously computed using a BRDF. Further, the Office Action fails to establish that the BRDF used in *Kouadio* fails to adequately account for specular light sources, thus failing to establish any motivation for looking to *Collodi* for accounting for such specular light sources.

Further, no motivation exists for modifying *Kouadio* and *Collodi* to provide a texture map that includes a function, as this would change the principle of operation of each of these references because, as discussed above, neither reference provides a texture map that includes a function.

Thus, because no motivation has been identified for combining the teaching of *Collodi* with that of *Kouadio*, the rejection of claims 29, 32-44, 46-48, and 50-51 should be withdrawn.

V. Rejection under 35 U.S.C. § 103(a) over *Kouadio* in view of *Toh*

Claim 54 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Kouadio* in view of *Toh*. Applicant respectfully traverses this rejection at least because the combination of *Kouadio* and *Toh* fails to teach or suggest all elements of claim 54, as discussed below.

Claim 54 recites:

> A method for creating a parametric texture map for modeling surface reflectance properties for use in rendering a digital image having said surface reflectance properties, said method comprising:
> for each texel of a texture, sampling surface reflectance data and determining at least one coefficient of said parametric texture map based at least in part on the sampled surface reflectance data, wherein said step of determining further comprises performing a least squares fit algorithm to the sampled surface reflectance data.

The current Office Action asserts that *Kouadio* teaches a parametric texture map for modeling surface reflectance properties, where the parametric texture map includes at least one coefficient as recited in claim 54. As discussed above, Applicant respectfully submits that *Kouadio* fails to teach or suggest such a parametric texture map. Rather, *Kouadio* teaches that a BRDF is used to compute values, which are then stored to a texture map and may be looked up during rendering using a normal vector. *Kouadio* does not teach or suggest that its BRDF (or other function) is included in a texture map, but instead the texture map of *Kouadio* merely includes previously computed values that may be looked up. Thus, *Kouadio* fails to teach a parametric texture map that includes a determined at least one coefficient. Additionally, *Toh* is not relied upon as teaching such a parametric texture map, nor does *Toh* do so.

Further, the current Office Action concedes that *Kouadio* fails to teach or suggest determining at least one coefficient of a parametric texture map by "performing a least squares fit algorithm to the sampled surface reflectance data." However, the Office Action asserts that *Toh* teaches this element. *Toh* provides at col. 2, line 64 – col. 3, line 2:

> According to one aspect of the invention there is provided an image processing system in which an acquired image is processed to identify edges in the image and to represent the intensity profile of image portions between detected edges as a respective mathematical expression thereby to reduce the amount of data used to define the image.

Thus, *Toh* is directed to a technique for detecting edges in an image and representing the intensity profile of portions between edges using a polynomial equation, *see* col. 4, lines 49-62 of *Toh*. *Toh* further provides at col. 4, line 63 – col. 5, line 5:

> There are several advantages in employing a polynomial function in the definition of intensity profile between two edges. Firstly, a polynomial can approximate to a large number of pixels using only a few parameters. Secondly, least-square fitting with a polynomial reduces noise, such as interference spikes and camera noise. Furthermore, very slight intensity variations due to surface texture, which are of course undesirable, are also removed. Thirdly, a polynomial fit is easily implemented by numerical algorithms on any suitable computer or image processor. (Emphasis added).

Toh is not directed to creating a parametric texture map for modeling surface reflectance properties for use in rendering a digital image. Further, while *Toh* mentions use of a least-square fitting with a polynomial to reduce noise in an intensity profile between two edges of an image, *Toh* provides no teaching or suggestion of performing a least squares fit algorithm to sampled surface reflectance data in order to determine at least one coefficient of a parametric texture map.

Thus, in view of the above, the rejection of claim 54 should be withdrawn because the combination of *Kouadio* and *Toh* fails to teach or suggest all elements of the claim.

VI. New Claims

New claims 55-64 are added herein. Claims 55-64 are believed to be allowable at least because of their dependency from their respective independent claims for the reasons discussed above.

VII. Conclusion

In view of the above amendment, Applicant believes the pending application is in condition for allowance.

The required fee for this response is enclosed. If any additional fee is due, please charge Deposit Account No. 08-2025, under Order No. 10015864-1 from which the undersigned is authorized to draw.

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Date of Deposit: January 26, 2006

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